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Quality of Marriages in Later Life and Emotional and Social Loneliness

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Objectives. We examine the extent of emotional and social loneliness among older people and how the evaluation of the functioning and quality of marriages plays a role.

Methods. Data on 755 respondents aged 64–92 are taken from the Longitudinal Aging Study Amsterdam (Wave 2001–2002). Hierarchical negative binomial regression analysis is used.

Results. Between 1 in 4 and 5 older adults who are married exhibit moderate or strong emotional or social loneliness. Stronger emotional and social loneliness is observed in adults whose spouse has health problems, who do not often receive emotional support from the spouse, who have nonfrequent conversations or are in disagreement, or who evaluate their current sex life as not (very) pleasant or not applicable. Emotional loneliness is stronger among women in second marriages, whereas marked social loneliness is especially characteristic of older men with disabled spouses. Moreover, smaller social networks and less contact with children also increase emotional and social loneliness in later life.

Discussion. Differentiating marital quality and gender provides greater insight into emotional and social loneliness in married older people.

Key Words: Loneliness—Emotional loneliness—Social loneliness—Marriage—Marriage quality.

SOCIAL integration and social well-being are crucial factors in the aging process as well as in predicting life expectancy (Berkman, 1995) and the onset of long-term illness (Cacioppo et al., 2002; Havens & Hall, 2001). A supportive network and marriage can help maintain social well-being by alleviating loneliness. People who are married tend to be better protected from loneliness (Allen, Blieszner, & Roberto, 2000; Dykstra & de Jong Gierveld, 2004), and there are very few studies that focus on loneliness among married people. However, marriage is not a guarantee that people will not be lonely. Some studies show that marital quality increases with age and is highest in later life (Hatch & Bulcroft, 2004). Based on longitudinal research, Umberson, Williams, Powers, Hui, and Needham (2005) show, however, that positive marital experiences generally decrease over time and negative marital experiences increase. Others (Bradbury, Fincham, & Beach, 2000) observe a continuous decrease in marital satisfaction throughout life. These late-life changes in marital quality and satisfaction could contribute to loneliness, but empirical evidence on this association is limited (Stevens & Westerhof, 2006). The purpose of this study was to go beyond the well-known associations between loneliness and health status or the size of the personal network, and establish those aspects of marital quality that are related to loneliness among older adults.

Theoretical Background

Loneliness is a universal phenomenon, but the antecedents vary to a large extent based on personal and contextual determinants (de Jong Gierveld, Van Tilburg, & Dykstra, 2006). Perlman and Peplau (1981) define loneliness as "the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively" (p. 38). Loneliness is a subjective and negative experience, the outcome of cognitive evaluation of the match between the *quantity* and *quality* of existing relationships and relationship standards. Loneliness has to be sharply differentiated from social isolation that concerns the objective characteristics of a situation and refers to the absence of relationships with other people. Loneliness is but one of the possible outcomes of the evaluation of a situation characterized by a small number of relationships. Where a person appears along the subjective loneliness continuum depends on his or her relationship standards. Dykstra and de Jong Gierveld (1994, p. 248) showed, for example, that the degree to which widowed adults experienced loneliness depended, among other factors, on their partner standard; the more importance placed on having a partner, the more lonely the widowed were. Some people with a small number of social contacts might feel lonely; others might feel sufficiently embedded. Drawing upon the cognitive perspective to loneliness (Perlman &

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Peplau, 1981), analyses focus on the psychological processes that mediate between participation in social networks and the experience of loneliness. This perspective examines the preferences, expectations, and desires for personal relationships among individuals and addresses the degree to which actual relationships meet them. So, loneliness is not assumed to be the result of a lack of personal relationships but results from feelings of dissatisfaction with existing relationships or a lack of relationships. Among married persons, loneliness may then, at least in part, result from a dissatisfaction with the marital relationship.

Several components of loneliness can be distinguished. Weiss (1973) differentiates *emotional loneliness* related to the absence of an intimate figure (spouse, best friend) and *social loneliness* related to the absence of a broader, engaging social network (friends, colleagues, neighbors). However, most research into loneliness lacks a differentiation according to emotional and social loneliness and the specific variables associated with each of these types of loneliness. It is the conviction of the authors that more nuanced knowledge about loneliness might be achieved by integrating the differentiation between emotional and social loneliness into the research design.

Loneliness has been linked to many aspects of life that in combination explain why some older people consider themselves lonely, whereas others feel sufficiently embedded (de Jong Gierveld et al., 2006). Loneliness can be associated with demographic and other background characteristics such as gender, health status, and related care needs of older people and their spouses (Beeson, 2003; Havens & Hall, 2001). Moreover, most research into loneliness tries to explain the sharp differentiation in the intensity of loneliness between older adults who are married and those who live alone. A further differentiation into loneliness among older married adults has rarely been undertaken; we intend to close this gap.

The cognitive theoretical perspective into loneliness assumes that emotional loneliness of married women and men is primarily related to the evaluation of the functioning and quality of the relationship with the spouse (Karney & Bradbury, 1995). Research into the *quality of older adults' marriages* in relation to well-being and loneliness is available (Hollist & Miller, 2005; Stack & Eshleman, 1998) but scarce. Waite and Lehrer (2003) view marital support as the key channel through which marriage leads to mental and physical health and well-being. Stevens and Westerhof (2006) show that older adults who report less companionship and support from their spouse are lonelier than their peers with better marriages. It is assumed that married people want to avoid serious conflicts: "If there is a conflict there is a discrepancy between ideal or standard (a partner who boosts one's self-esteem, who has similar views on life, with whom one gets on well) and reality (a partner with whom one often argues)" (Dykstra & Fokkema, 2007, p. 3). Evaluative judgments of marital quality have been investigated using several measuring instruments that differentiate satisfying from unsatisfying marriages (Bradbury et al., 2000). Hatch and Bulcroft (2004), however, propose investigating the *domain-specific evaluations* of the quality of marriages, and research by Herman (1994) shows several changes in domains such as satisfaction with the quality of communication in later life. Research by Vaillant and Vaillant (1993) also indicates a change in one of the domains: In later life, the wives' assessment of difficulties they encountered in finding solutions to marital disagreements proves to be the main determinant of their lower marital satisfaction. The positive effects of satisfaction with continued sexual activity in later life on the overall marital quality are demonstrated in Ade-Ridder (1990). Askham (1995) advocates incorporating intimate details of conjugal life in research on the quality of marriages. In addition, marriage history is of importance (Dykstra & de Jong Gierveld, 2004; Peters & Liefbroer, 1997; Wenger, Davies, Shahtahmasebi, & Scott, 1996). The problems people faced in their marriage do not end after divorce but can linger on during remarriage (Kalmijn & Monden, 2006). Henry and Lovelace (1995) have shown that repartnering may be a stressful event because of the many changes this entails (moving to a new home, adapting to new household rules). Moreover, it is difficult in later life to change a partner's fixed habits, and repartnering frequently has negative effects on the relationships with children, both in the short run and in later phases of life (Amato, 2000).

The cognitive perspective into loneliness assumes that social loneliness is primarily related to the evaluation of the quality and functioning of the broader social network, including the size of the social network, the presence of children, the number of children contacted frequently (Pinquart, 2003), and the functioning of the social network via s*ocial support* given or received (Wagner, Schütze, & Lang, 1999). A strong bond to a religious community is considered as another means by which social loneliness may be alleviated (Van Tilburg, de Jong Gierveld, Lecchini, & Marsiglia, 1998).

Strictly speaking, the cognitive perspective into loneliness requires the examination of both standards and evaluations of personal relationships. Unfortunately, standards on the marital relationship and the personal network are not available in our data set. In this respect, we used indicators of what in general might be considered to be "a good spouse," in specific often receiving emotional and instrumental support, a certain frequency of good conversations, the absence of strong disagreements, and a pleasant spousal sexual life. Regarding the social network, indicators are used reflecting frequent and supportive interactions with children and other network members, in specific having weekly contact with children, a large network size, and often exchanging emotional and instrumental support with network members. This limits the study to some degree, but given the information on a variety of domain-specific marital characteristics and social network characteristics, we feel that the study significantly contributes to our understanding of loneliness among married older adults.

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The purpose of this study can now be formulated more precisely: to examine the prevalence of loneliness among older married adults and the characteristics of their marriages that are associated with emotional and social loneliness. We hypothesize that in addition to demographic and other background variables, the evaluation of domain-specific characteristics of their marriages—frequency of support exchanges, marital disagreements, frequency of good conversations, and the evaluation of the current sexual relationship—is related to differences in emotional loneliness. Next we hypothesize that, in addition to demographic and other background variables, the size and functioning of the broader social network—frequency of contacts with children (if present), the size of the social network, the exchange of support within this network—is related to differences in social loneliness among older married persons. Our overall aim was to investigate loneliness in adults aged 64–93, a group frequently not included in research on marital functioning and its components such as sexual activities. Unlike most of the research in the field based on smaller convenience samples (Cristopher & Sprecher, 2000), this study is based on a representative survey.

Methods

Respondents

The data are from the Dutch Living Arrangements and Social Networks of Older Adults Survey (NESTOR-LSN) and the follow-up panel study, the Longitudinal Ageing Study Amsterdam. Interviews were conducted in 1992 with 4,494 men and women born between 1903 and 1937 (Knipscheer, de Jong Gierveld, Van Tilburg, & Dykstra, 1995). The overall response rate was 61.7%. The sample is fairly representative of the population. The respondents were interviewed again in 1993, 1995–1996, 1998–1999, 2001–2002, and 2005–2006. We use the 2001–2002 wave, the first wave including questions about domain-specific marriage components. The interviews were conducted face-to-face. After the interviews, the respondents were asked to fill out a written questionnaire including questions on the marital quality. Deeg, Van Tilburg, Smit, and De Leeuw (2002) investigated the decrease in sample size from one wave to the next and concluded that 80% of the decrease could be attributed to the death of the respondent and that a refusal to participate in the survey was not related to demographic characteristics or physical and mental health. We selected the 755 respondents from the 2001–2002 sample (N = 1,474) who provided information on the loneliness subscales and whose spouse was present in their household. Of these 755 respondents, 676 (89.5%) were in their first marriage, 50 (6.6%) had remarried, and 29 (3.8%) were currently involved in unmarried cohabitation after widowhood or divorce. In this article, we view the relationships of those in unmarried cohabitation as equivalent to marriages and refer to them in the rest of this article as married people or spouses and refer to their relationships as marriages.

Measuring Instruments

To measure the dependent variable *loneliness*, we use the De Jong Gierveld Scale, which consists of 11 items; 6 of the items are grouped together as the emotional subscale (range 0–6), and 5 items constitute the social subscale (range 0–5) (de Jong Gierveld & Kamphuis, 1985; de Jong Gierveld & Van Tilburg, 1999); for the items of the scales and the scoring procedures see the Appendix. Dependent on the research question, one can choose to use either the overarching 11-item loneliness scale or the subscales. The scales have proven to be reliable and valid (Dykstra & Fokkema, 2007; Pinquart & Sörensen, 2001); in this study, the reliability coefficients for the emotional and the social subscales are .80 and .73, respectively. Mean scores on the two subscales are skewed, with large proportions of respondents reporting no loneliness feelings; this is especially so for married people (Dykstra & de Jong Gierveld, 2004). The married are generally less emotionally lonely than those who are single, a finding that is consistent with Weiss's (1973) theoretical conceptualizations about the lack of an intimate attachment; the outcomes for social loneliness are mixed. Although the scores on the emotional and social loneliness scale, even among the married, cover the whole range of the scales, it is recommended to take this nonnormal distribution of the dependent variable into account in deciding upon the optimal procedures for analyzing the data.

Demographic and other background characteristics include age at interview (64–92) and net monthly income (corrected for household size, ranging from €788 to €5,750). The health of the respondent and the spouse is measured using six functional limitations in daily activities, ranging from 0 to 6, with a higher score indicating more limitations (Van Tilburg & Broese van Groenou, 2002). Cognitive functioning of the spouse is assessed by the following question: "Does your spouse have memory problems?" (no, yes some problems, yes quite a few problems). Questions about *partner history* have been included as well as *the number of children* ever born to the respondent and the number of children contacted at least weekly. The variable number of children contacted on weekly basis is included in the analyses as a nominal-level variable to differentiate between childless respondents and respondents who have children yet who do not see one of them on a weekly basis (having children and seeing two or more of them on at least a weekly basis is taken as the reference group). Given that *religious activities* are important vehicles for creating a social network, affiliation with the church is assessed by the following question: "How strongly affiliated with the church do you currently feel?"(no church member, not in the least, mildly, strongly affiliated).

The s*ocial network* is investigated by analyzing contacts with seven categories of relationships: people in the same

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household, children, other relatives, neighbors, contacts at work, contacts via organizations, and other contacts. For each domain, the respondents are asked to specify the names of people with whom they are regularly in touch and who are important to them (see Van Tilburg, 1998, for details). The total network size ranges from 0 to 67. Questions about giving and receiving instrumental and emotional support take account of a maximum of 10 network members, including the spouse: (a) "How often did it occur in the past year that X told you about his or her personal experiences and feelings?" (emotional support given); (b) "How often did it occur in the past year that you told X about your personal experiences and feelings?" (emotional support received); (c) "How often did it occur in the past year that X helped you with daily chores in and around the house, such as preparing meals, cleaning the house, transportation, small repairs or filling in forms?" (instrumental support received); and (d) "How often did it occur in the past year that you helped X with daily chores in and around the house?" (instrumental support given). Answer categories are as follows: (1) never, (2) seldom, (3) sometimes, and (4) often. The support received and given is counted for a maximum of nine network members other than the spouse and ranges on each of the support exchange questions from 0 to 36. The support exchanged between spouses is counted separately and ranges on each of the four exchange indicators from 1 to 4.

Questions about the *marital functioning and quality* include four indicators evaluating domain-specific components: (a) frequency of important conversations, (b) degree of spousal agreement, (c) the spouse as confidant, and (d) evaluation of current sex life. The frequency with which spouses have good conversations about important topics is measured as follows: "How often do you and your spouse have a good talk about something that is really important to you?" (1 = less than once a month, 5 = at least daily). Based on the work of the Research Network on Successful Midlife Development (Brim, Ryff, & Kessler, 2004), we use four questions to measure the level of spousal agreement. The themes include financial affairs, household chores, leisure time, and spousal attentiveness. We construct a scale ranging from 4 (*strongly disagree*) to 16 (*strongly agree*), with $\alpha = 0.89$. Additionally, respondents are asked to name network members they consider confidants. We use this information to indicate whether or not the spouse is named as confidant (0 = spouse not named as confidant, 1 = spouse named as confidant but not as first confidant, 2 = spouse named as first confidant). A direct question is used to evaluate the quality of the couple's current sexual relationship: "How would you evaluate your current sex life?" The answer category "not applicable or no answer" has to be differentiated from the answers ranging from (1) *very unpleasant* to 5 *very pleasant*; in the analyses, this variable is used as a nominal-level variable, with the answer *(very) pleasant* as reference category.

Procedure

Item nonresponse in the data set is less than 5%. However, for one variable, item nonresponse is around 9%. Missing information is dealt with using multiple imputation; missing values for each respondent are predicted using appropriate regression models (linear, binary logit, multinomial logit, or ordered logit) and all the information that we used in our analyses (Schafer & Graham, 2002). In investigating the effects of different sets of variables on loneliness, given the nonnormal distribution of the loneliness scales, the use of linear regression models might result in inconsistent and biased estimates. In this context, hierarchical negative binomial regression analyses (Long & Freese, 2006) are to be preferred and have been applied, separately for emotional and social loneliness. Variables are tested in a sequence that moves from (1) demographic and other background variables, health, and religious affiliation; via (2) characteristics of the broader social network, to (3) variables indicating the quality of the marriage relationship. Multicollinearity statistics showed strong correlations between emotional support given and received from the spouse ($r = .58$), and emotional support given and received not from the spouse ($r = .57$). The Variance Inflation Factors (VIF) values of the two variables indicating emotional support given were relatively high (VIF = 1.73 for nonspouse support and 1.67 for spouse support), so the two variables indicating given emotional support were left out of the multivariate analyses. Additionally, interaction effects between gender and characteristics of the partner (bond) have been investigated; the significant interaction effects have been selected for further investigations (included in Step 4).

Results

General Data About Loneliness

About 18% of the female and 16% of the male respondents exhibit feelings of emotional loneliness (score 2 or higher on the scale); the differences in the scores of women and men are not significant. In total, 18% of the older women exhibit social loneliness, as compared with 26% of the men; this difference is significant. Men are significantly more at risk of social loneliness than women (Table 1).

Hierarchical Negative Binomial Regression on Emotional Loneliness

Hierarchical negative binomial regression analyses with multiple imputations of missing values are performed to assess whether selected variables help explain the variance in the emotional loneliness scores. Results are shown in Table 2, with information about the incidence rate ratios for each of the four steps. Statistical significance was set at $\alpha = 0.05$, two tailed; additionally, information is provided about relationships that are significant at $\alpha = .10$ because for several variables the direction of the expected relationship is known.

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Table 1. Sample Characteristics of Longitudinal Ageing Study Amsterdam Survey, Wave 2001–2002; Adults With Spouse, Aged 64–93 (N = 755)

	Women (n = 299)		Men (n = 456)			
	M or %	SD	M or %	SD	F	P
Age	72.2	5.76	73.8	6.87	11.084	<.01
Percentage emotional lonely (score 2 or higher on the scale of 0–6)	18.4		15.8		0.875	*ns*
Percentage social lonely (score 2 or higher on the scale of 0–5)	17.7		25.7		6.552	<.05
Functional limitations (0–6)	1.4	1.64	1.2	1.60	3.638	<.10
(Strongly) Religiously affiliated	51.4		42.1		5.449	<.05
Number of children weekly contacted (0–9)						
Childless	12.7		11.4		2.920	*ns*
None	6.0		7.5		0.580	*ns*
One	18.7		21.7		0.640	*ns*
Two or more	62.5		59.4		0.732	*ns*
Network size (0–67)	15.9	9.30	15.4	10.00	2.471	*ns*
Emotional support often received not from spouse (1—23 vs. 24–36)	34.1		17.1		29.833	<.001
Instrumental support often received not from spouse (1–18 vs. 19–36)	13.0		14.0		0.150	*ns*
Instrumental support often given not to spouse (1–18 vs. 19–36)	11.1		21.0		12.974	<.001
Functional limitations of spouse (0–6)	1.1	1.70	1.3	1.80	3.821	<.10
Memory problems of spouse (no–yes)	15.4		9.6		5.686	<.05
Emotional support often received from spouse	72.9		73.2		0.010	*ns*
Emotional support often given to spouse	63.9		77.6		17.356	<.001
Instrumental support often received from spouse	73.9		88.4		27.226	<.001
Instrumental support often given to spouse	77.9		79.2		0.165	*ns*
Spouse is first confidant	47.8		56.4		3.568	<.10
Strongly agree with spouse	31.4		36.2		6.805	*ns*
At least weekly good conversation with spouse	56.9		61.8		1.868	*ns*
Evaluation of current sexual life						
Not applicable/no answer	43.5		35.5		4.833	<.05
(Very) Unpleasant	7.7		4.4		3.141	<.10
Not pleasant/not unpleasant	24.4		24.1		0.008	*ns*
(Very) Pleasant	24.4		35.7		12.767	<.001

Note: ns, not significant.

Table 2 shows that in Step 1, a total of 1.4% of the variance is explained. Older adults are more frequently confronted with emotional loneliness than young-old people. Respondents with more functional limitations are characterized by higher loneliness scores. Stronger affiliation to the church is significantly related to lower levels of emotional loneliness. Characteristics of social integration, as reflected in contact with children and others and in support exchanged, add in Model 2 an additional 1.5% explained variance. Having children but not seeing one on at least a weekly basis significantly increases the level of emotional loneliness of older adults. The size of the social network and instrumental support given to network members is related to lower loneliness. The effect of age is mediated by social network characteristics and is no longer significant in Step 2. The variables in Step 3 add 2.3%. Of the variables entered in this step, functional limitations of the spouse contribute significantly to higher levels of emotional loneliness. Additionally, Table 2 shows that the evaluation of current sex life is associated with emotional loneliness: Those who mention that sex life is not applicable or who evaluate sex life as neither unpleasant nor pleasant or as (very) unpleasant are more prone to loneliness than those who report sex life to be (very) pleasant. A lower degree of agreement between spouses and a lower frequency of emotional support received from the spouse are associated with higher emotional loneliness.

Exploring the interactions between gender and characteristics of the spousal relationship, the analysis showed that being remarried is distinctively associated with emotional loneliness for both men and women. In Step 4, the interaction term is included; the effect is significant and increases the total explained variance from 5.2% to 5.5%: Emotional loneliness is lower for remarried men than for remarried women.

Hierarchical Negative Binomial Regression on Social Loneliness

Step 1 of Table 3 shows that gender contributes significantly to differences in social loneliness and remains significant over all four steps of the analyses. Strong religious affiliations are related to lower levels of social loneliness. Income is significant in Steps 1 and 2. Step 2 shows that frequent contact with children, a larger social network, emotional support received from people of the social network, and instrumental support given to members of the broader social network are significantly related to lower levels of social loneliness. This second step increases the explained variance from 2.0% to 5.5%. All social integration variables remain significant over the following steps in the analyses. Step 3 adds further explained variance, increasing the total explained variance to 6.8%. More specifically,

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Table 2. Incidence Rate Ratios of Emotional Loneliness by Demographic, Social Network, and Marriage Characteristics Obtained From Hierarchical Negative Binomial Regression Analysis ($N = 755$)

	Model 1	Model 2	Model 3	Model 4
Sex (male, female)	1.21	1.25	1.23	1.24
Age (64–92 years)	1.02*	1.02	1.01	1.02
Monthly income (/1,000)	0.84*	0.88†	0.98	0.98
Functional limitations (0–6)	1.08†	1.05	1.01	1.00
First marriage/remarriage	0.80	0.65†	0.69	0.63†
Religious affiliation (no member/weak–strong)	0.74*	0.86	0.90	0.91
Number of children seen weekly				
Two or more (reference)		—	—	—
One		1.27	1.36†	1.37†
None		1.59†	1.68*	1.82*
Childless		1.23	1.23	1.23
Network size (1–67)		0.98*	0.98**	0.98**
Emotional support received not from spouse (1–23 vs. 24–36)		0.85	0.94	0.92
Instrumental support received not from spouse (1–18 vs. 19–36)		1.24	1.32	1.33
Instrumental support given not to spouse (1–18 vs. 19–36)		0.56**	0.61*	0.61*
Functional limitations of spouse (0–6)			1.10*	1.10*
Memory problems of spouse (no–yes)			0.94	0.95
Emotional support received from spouse (1–3 vs. 4)			0.68*	0.70*
Instrumental support received from spouse (1–3 vs. 4)			0.88	0.89
Instrumental support given to spouse (1–3 vs. 4)			0.76†	0.73†
Spouse is first confidant			1.02	1.02
Degree of agreement with spouse (4–13 vs. 14–36)			0.76†	0.78
Frequency of good conversations with spouse (1—3 vs. 4–5)			0.78	0.78
Evaluation of current sex life				
(Very) Pleasant (reference)			—	—
Not pleasant/not unpleasant			1.41†	1.38*
(Very) Unpleasant			1.63	1.67†
Not applicable/no answer			1.41†	1.41†
Sex × First/Second Marriage				3.20*
Constant	.29	.41	.52	.50
Alpha	2.16***	1.94***	1.63***	1.60***
Log likelihood	–845.14	–833.16	–813.86	–810.79
Pseudo R^2	.014	.029	.052	.055

Notes: †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

functional limitations of the spouse, lower levels of emotional support received from the spouse, no frequent good conversations, and the evaluation of the couple's current sex life as not applicable contribute significantly to higher levels of social loneliness. The interaction between sex and health of the spouse is significant and proves to be significant also after introducing this interaction into Step 4 of the analyses; the total explained variance ends up at 7%. In general, functional limitations of the spouse are associated with higher levels of social loneliness. The interaction effect shows that this effect is especially strong for men and hardly if at all so for women with spouses with functional limitations.

Discussion

Empirical research into loneliness has repeatedly shown that the risks of loneliness differ significantly for single and married people. People living alone run a higher risk of being lonely than married people. This applies to loneliness in adults of all ages. However, there is also loneliness in marriages. Data from this study about married women and men aged 64–92 show that 18% and 16%, respectively, are emotionally lonely, and social loneliness is reported by 18% and 26%, respectively. There is no significant gender difference in emotional loneliness, but men score significantly higher on the social loneliness scale. In part, the relatively low level of loneliness may be determined by characteristics of this sample, that is, mainly older adults in long-term marriages and only 4% in unmarried cohabitation (after divorce or widowhood). The variation in loneliness may thus be underestimated in this sample. Still, the findings indicate that the simple distinction between married and single respondents needs qualification when measuring the extent of loneliness among older adults.

The aim of this study was to investigate the factors associated with emotional and social loneliness of married people, including network characteristics and the quality of the marital relationship. Emotional loneliness proves to be associated with the size of the social network and with the exchange of instrumental support between members of this social network. Giving instrumental support to members of the broader social network is associated with lower emotional loneliness. In addition, the analyses reveal the importance of spousal support exchanges. Those married older adults who give more instrumental support to the spouse and especially also those who receive more emotional support from the

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Table 3. Incidence Rate Ratios of Social Loneliness by Demographic, Social Network, and Marriage Characteristics Obtained From Hierarchical Negative Binomial Regression Analysis (N = 755)

	Model 1	Model 2	Model 3	Model 4
Sex (male, female)	0.68**	0.74*	0.72**	0.72**
Age (64–92 years)	1.01	1.01	1.00	1.00
Monthly income (/1,000)	0.85*	0.89†	0.95	0.96
Functional limitations (0–6)	1.01	1.01	0.99	1.00
First marriage/remarriage	1.20	0.98	1.00	1.00
Religious affiliation (no member/weak–strong)	0.65***	0.79*	0.84	0.84
Number of children seen weekly				
Two or more (reference)		—	—	—
One		1.56**	1.65***	1.66***
None		1.63*	1.77**	1.81**
Childless		1.45*	1.50*	1.52*
Network size (1–67)		0.97***	0.98***	0.98***
Emotional support received not from spouse (1–23 vs. 24–36)		0.63**	0.66**	0.66**
Instrumental support received not from spouse (1–18 vs. 19–36)		0.90	0. 95	0.94
Instrumental support given not to spouse (1–18 vs. 19–36)		0.68*	0.71†	0.71†
Functional limitations of spouse (0–6)			1.06†	1.06†
Memory problems of spouse (no–yes)			0.87	0.88
Emotional support received from spouse (1–3 vs. 4)			0.70**	0.70**
Instrumental support received from spouse (1–3 vs. 4)			1.05	1.05
Instrumental support given to spouse (1–3 vs. 4)			1.03	1.03
Spouse is first confidant			0.99	0.99
Degree of agreement with spouse (4–13 vs. 14–36)			0.88	0.88
Frequency of good conversations with spouse (1–3 vs. 4–5)			0.79*	0.79*
Evaluation of current sex life				
(Very) Pleasant (reference)			—	—
Not pleasant/not unpleasant			1.09	1.09
(Very) Unpleasant			1.20	1.21
Not applicable/no answer			1.37*	1.39*
Sex × Health of Spouse				0.62*
Constant	0.81	1.10	1.37	1.51
Alpha	1.28†	0.92	0.77	0.76
Log likelihood	–946.64	–912.74	–898.34	–896.14
Pseudo R^2	.020	.055	.068	.070

Notes: †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

spouse are less prone to emotional loneliness. In this context, one might say *virtue is its own reward*. The same pattern can be observed in older adults' relationships with their siblings and non-coresident children (de Jong Gierveld & Dykstra, 2008). Two other indicators of marital quality prove to be associated with emotional loneliness. Emotional loneliness is higher if married people report a higher level of disagreements regarding financial affairs, household chores, or spousal attentiveness, and evaluate their current sex life as not applicable or not (very) pleasant. The research shows a significant interaction term: Remarried men are significantly less lonely than remarried women. We expect that the outcomes of remarriage (e.g., difficulties in maintaining relationships with members of the social network dating back to the period before remarriage, difficulties in maintaining contacts with children from the first marriage; de Jong Gierveld & Peeters, 2003) are more salient for women than for men. Together the variables under investigation explain 5.5% of the total variance in emotional loneliness.

The same variables explain 7.0% of the variance in social loneliness. The demographic variables that show a significant association with social loneliness are gender, income, and religious affiliation. Gender is significant throughout the four steps, indicating a strong relationship with social loneliness, with men in the high-risk category. Not surprisingly, the indicators of social integration, that is, social network size and especially number of children with whom there is weekly contact, correlate significantly with social loneliness. The childless and those who have children but see none or only one per week are more socially lonely than older adults who have weekly contacts with two or more children. As Buber and Engelhardt (2008) have stated, a high frequency of contact with children is a sign of integration, whereas less contact with children is interpreted as a sign of disinterest and lack of concern for one's old parents. Because the broader social environment is hypothesized to be central for the onset and alleviation of social loneliness, the important role of the social integration variables is understandable. However, variables on the marital functioning and quality make a significant addition to the explained variance. Of the marriage characteristics, the degree of emotional support received from the spouse contributes significantly. Also significant are both the low frequency of good conversations and the evaluation of the current sexual relation as not applicable.

In general, the analyses show that emotional loneliness is significantly associated with the marital functioning and

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quality, and the same holds true of social loneliness. As regards emotional loneliness, this is in accordance with our hypothesis that emotional loneliness is primarily connected with the intimate bond with the spouse. The association is a little surprising as regards social loneliness, which is hypothesized to be related to the functioning of the broader social network. In addition, emotional loneliness is also associated with the larger social network, which was not hypothesized. The relative contribution of the network indicators proved to be 1.5% for emotional loneliness and 3.5% for social loneliness. So the effects of the network variables were stronger for social loneliness. The relative contribution of the marital quality indicators to emotional and social loneliness was 2.3% and 1.3%, respectively. As a result, we have to nuance our hypotheses as both the functioning of the social network and the quality of the marital relationship proved important for both types of loneliness. The early distinction between emotional and social loneliness by Weiss (1973) loses some of its significance. Our findings show that emotional loneliness not only refers to the absence of an intimate figure but also to the absence of a broader supportive social network and that the same holds for social loneliness. A possible explanation might be that the optimal social functioning of older married adults is fostered by their ability to act together in building and maintaining a broader social network. Women take the lead in organizing the couple's visits to relatives and nonkin, with men driving the cars to visit these relevant others. After the age of 65, the official retirement age in the Netherlands with very few adults continuing to work, older couples are in an optimal position to maintain contact with their children, grandchildren, siblings, and old friends. Many older adults in the Netherlands do volunteer work for all kinds of organizations, which enables them to expand and invest in their social network (Van den Broek & Breedveld, 2004). Apparently, an optimally functioning and positively evaluated marriage serves as a solid basis for organizing a couple's social contact with members of the kin and nonkin network. The positive evaluation of the couple's current sexual relationship is relevant as well, although the role of this factor in lessening social loneliness is still unclear. Maybe the evaluation of a couple's current sexual relationship as pleasant can be viewed as radiating vitality and joie de vivre and as a solid basis of attachment (Weiss, 1974). Future research in the field could benefit from a more in-depth investigation of this aspect of older adults' life that is so often overlooked. We can conclude that this study shows that the differentiation between emotional and social loneliness, with its focus on the spouse and on the broader social network, needs to be revised. An optimally functioning and positively evaluated marriage is of crucial importance in older adults' lives for an effectively functioning social network and for alleviating emotional and social loneliness.

This study has certain limitations that should be taken into consideration. First, standards regarding the network and the marital relationship were not included in the study, as was already mentioned in the introduction. We assumed that, for example, having frequent good conversations indicates a good marital relationship in old age. However, this may not be that important for many older couples, which would explain the lack of effect of this indicator for emotional loneliness. In contrast, those who indicated that a sex life was "not applicable" were more emotionally lonely, suggesting that this fact did not live up to their standard of having a good sex life in their late-life marital relationship. The two interaction effects showed that men and women deal differently with spousal health problems and with remarriage in later life. This may also reflect gender differences in standards toward the marital relationship. Although our findings corroborated the importance of marital quality for feelings of loneliness, including standards on the marital relationship in future studies will increase our understanding of the preferences and expectations regarding spouses in late life even more.

Second, there are some methodological limitations to the study. This investigation of the quality of the marital relationship is based on the report of one spouse only; no data are available from respondents' spouses. Information on the marital quality and loneliness of both spouses would have enhanced our understanding of the gender differences in loneliness. One interaction effect showed that health problems of the spouse affect the loneliness only of the husbands and not of the wives. Spousal data would have allowed better examination of actor and partner effects (cf. Korporaal, Broese van Groenou, & Van Tilburg, 2008), a method that has not previously been used on loneliness of older couples. Moreover, the evaluation of the current sexual relationship is based on one direct question. This may limit our understanding of the effect of the quality of sex life on loneliness, although analyses of the responses to even this one question indicate that the absence of a sex life matters for both emotional and social loneliness. With the cognitive perspective of loneliness in mind, this suggests that older people still value this specific quality of their marital relationship, even when they rationally understand that their sex life is restricted due to cognitive dysfunctioning or physical health problems of either one of the spouses. A significant role is expected for memory problems of older adults' spouses. This study fails to investigate this relationship: first, because memory problems are investigated using only one question, and second, because only a small percentage of the spouses of older adults are recorded as having severe memory problems. It is possible that due to the burden of their care-related obligations, older adults with spouses with such serious memory problems did not participate in this wave of the panel study.

Given the increased life expectancy of the general population, a growing number of older couples are confronted with health problems, and one could expect that older couples with health problems would be at risk of emotional and social loneliness. This research shows that it is not the health of the respondent but the health situation of the spouse that is directly and significantly associated with emotional and social loneliness. It is likely that the health of the spouse

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also affects other domains of the marital relationship, as the provision of instrumental support to the spouse and the evaluation of the sex life, which may have decreased the effects of the latter indicators. Spousal health problems may also hamper interactions with other network members, particularly for men, as demonstrated by the significant interaction effect of gender and health on social loneliness. Once again this illustrates the importance of networking expertise of married women and their husbands' reliance on these capacities.

We conclude by emphasizing that the functioning and quality of marriage proves to be central for understanding differences in both emotional and social loneliness among older married women and men, with a special, until now not explicitly recorded emphasis on the evaluation of sexual relationship in late life. In this context, it is good to know that most of the older married respondents in this study (72%) agree with the statement, "As one grows older, there is still a need for tenderness and intimacy."

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References

Ade-Ridder, L. (1990). Sexuality and marital quality among older married couples. In T. H. Brubaker (Ed.), *Family relationships in later life* (2nd ed., pp. 48–67). London: Sage.

Allen, K. R., Blieszner, R., & Roberto, K. A. (2000). Families in the middle and later years: A review of research in the 1990s. *Journal of Marriage and the Family*, *62*, 911–926.

Amato, P. (2000). The consequences of divorce for adults and children. *Journal of Marriage and the Family*, *62*, 1269–1287.

Askham, J. (1995). The married lives of older people. In S. Arber & J. Ginn (Eds.), *Connecting gender & ageing* (pp. 87–97). Buckingham, UK: Open University Press.

Beeson, R. A. (2003). Loneliness and depression in spousal caregivers of those with Alzheimer's disease versus non-caregiving spouses. *Archives of Psychiatric Nursing*, *17*, 135–143.

Berkman, L. (1995). The role of social relations in health promotion. *Psychosomatic Medicine*, *57*, 245–254.

Bradbury, T. N., Fincham, F. D., & Beach, S. R. H. (2000). Research on the nature and determinants of marital satisfaction: A decade in review. *Journal of Marriage and the Family*, *82*, 964–980.

Brim, O. G., Ryff, C. D., & Kessler, R. C. (2004). *How healthy are we? A national study of well-being at midlife*. Chicago: University of Chicago Press.

Buber, I., & Engelhardt, H. (2008). Children's impact on the mental health of their older mothers and fathers: Findings from the survey of health, ageing and retirement in Europe. *European Journal of Ageing*, *5*, 31–45.

Cacioppo, J. T., Hawkley, L. C., Crawford, L., Ernst, J. M., Burleson, M. H., Kowalewski, R. B., Malarkey, W.B., Van Cauter, E., Berntson, G.G. (2002). Loneliness and health: Potential mechanisms. *Psychosomatic Medicine*, *64*, 407–417.

Cristopher, F. S., & Sprecher, S. (2000). Sexuality in marriage, dating and other relationships: A decade review. *Journal of Marriage and the Family*, *62*, 999–1017.

Deeg, D. J. H., Van Tilburg, T., Smit, J. H., & De Leeuw, E. (2002). Attrition in the Longitudinal Aging Study Amsterdam. *Journal of Clinical Epidemiology*, *55*, 319–328.

de Jong Gierveld, J., & Dykstra, P. A. (2008). Virtue is its own reward? Support giving in the family and loneliness in middle and old age. *Ageing & Society*, *28*, 271–287.

de Jong Gierveld, J., & Kamphuis, F. (1985). The development of a Rasch-type loneliness scale. *Applied Psychological Measurement*, *9*, 289–299.

de Jong Gierveld, J., & Peeters, A. (2003). The interweaving of repartnered older adults' lives with their children and siblings. *Ageing & Society*, *23*, 187–205.

de Jong Gierveld, J., & Van Tilburg, T. (1999). *Manual of the loneliness scale*. Amsterdam: Vrije Universiteit.

de Jong Gierveld, J., Van Tilburg, T., & Dykstra, P. A. (2006). Loneliness and social isolation. In A. Vangelisti & D. Perlman (Eds.), *Cambridge handbook of personal relationships* (pp. 485–500). Cambridge, UK: Cambridge University Press.

Dykstra, P. A., & de Jong Gierveld, J. (1994). The theory of mental incongruity, with a specific application to loneliness among widowed men and women. In R. Erber & R. Gilmour (Eds.), *Theoretical frameworks for personal relationships* (pp. 235–259). Hillsdale, NJ: Erlbaum.

Dykstra, P. A., & de Jong Gierveld, J. (2004). Gender and marital-history differences in emotional and social loneliness among Dutch older adults. *Canadian Journal of Aging/La Revue canadienne du vieillissement*, *23*, 141–155.

Dykstra, P. A., & Fokkema, T. (2007). Social and emotional loneliness among divorced and married men and women: Comparing the deficit and cognitive perspectives. *Basic and Applied Social Psychology*, *29(1)*, 1–12.

Hatch, L. R., & Bulcroft, K. (2004). Does long-term marriage bring less frequent disagreements? Five explanatory frameworks. *Journal of Family Issues*, *25*, 465–495.

Havens, B., & Hall, M. (2001). Social isolation, loneliness, and the health of older adults. *Indian Journal of Gerontology*, *14*, 144–153.

Henry, C. S., & Lovelace, S. G. (1995). Family resources and adolescent family life satisfaction in remarried family households. *Journal of Family Issues*, *16*, 765–786.

Herman, S. M. (1994). Marital satisfaction in the elderly. *Gerontology & Geriatrics Education*, *14(4)*, 69–79.

Hollist, C. S., & Miller, R. B. (2005). Perceptions of attachment style and marital quality in midlife marriage. *Family Relations*, *54*, 46–57.

Kalmijn, M., & Monden, C. W. S. (2006). Are the negative effects of divorce on well-being dependent on marital quality? *Journal of Marriage and Family*, *68*, 1197–1213.

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method and research. *Psychological Bulletin*, *118*, 3–34.

Knipscheer, C. P. M., de Jong Gierveld, J., Van Tilburg, T., & Dykstra, P. A. (1995). *Living arrangements and social networks of older adults*. Amsterdam: VU University Press.

Korporaal, M., Broese van Groenou, M., & Van Tilburg, T. G. (2008). Effects of own and spousal disability on loneliness among older adults. *Journal of Aging and Health*, 20, 306–325.

Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables using Stata* (2nd ed.). College Station, TX: Statacorp LP.

Perlman, D., & Peplau, L. A. (1981). Toward a social psychology of loneliness. In S. W. Duck & R. Gilmour (Eds.), *Personal relationship 3* (pp. 31–56). London: Academic Press.

Peters, A., & Liefbroer, A. C. (1997). Beyond marital status: Partner history and well-being in old age. *Journal of Marriage and the Family*, *59*, 687–699.

Downloaded from http://psychsocgerontology.oxfordjournals.org/ at Vrije Universiteit, Library on June 26, 2012

Pinquart, M. (2003). Loneliness in married, widowed, divorced, and never-married older adults. *Journal of Social and Personal Relationships*, *20*, 31–53.

Pinquart, M., & Sörensen, S. (2001). Influences on loneliness in older adults: A meta-analysis. *Basic and Applied Social Psychology*, *23*, 245–266.

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147–177.

Stack, S., & Eshleman, J. R. (1998). Marital status and happiness: A 17-nation study. *Journal of Marriage and the Family*, *60*, 527–536.

Stevens, N., & Westerhof, G. J. (2006). Marriage, social integration and loneliness in the second half of life: A comparison of Dutch and German men and women. *Research on Aging*, *28*, 713–729.

Umberson, D., Williams, K., Powers, D. A., Hui, L., & Needham, B. (2005). Stress in childhood and adulthood: Effects on marital quality over time. *Journal of Marriage and Family*, *67*, 1332–1347.

Vaillant, C. O., & Vaillant, G. E. (1993). Is the U-curve of marital satisfaction an illusion? A 40-year study of marriage. *Journal of Marriage and the Family*, *55*, 230–239.

Van den Broek, A., & Breedveld, K. (Eds.), (2004). *Trends in time. The use and organization of time in the Netherlands, 1975–2000*. The Hague, The Netherlands: Social and Cultural Planning Bureau.

Van Tilburg, T. (1998). Losing and gaining in old age: Changes in personal network size and social support in a four-year longitudinal study. *Journals of Gerontology: Social Sciences*, *53*, S313–S323.

Van Tilburg, T., & Broese van Groenou, M. I. (2002). Network and health changes among older Dutch Adults. *Journal of Social Issues*, *58*, 697–713.

Van Tilburg, T., de Jong Gierveld, J., Lecchini, L., & Marsiglia, D. (1998). Social integration and loneliness: A comparative study among older adults in the Netherlands and Tuscany, Italy. *Journal of Social and Personal Relationships*, *15*, 740–754.

Wagner, M., Schütze, Y., & Lang, F. R. (1999). Social relationships in old age. In P. B. Baltes, & K. U. Mayer (Eds.), *The Berlin Aging Study. Aging from 70 to 100* (pp. 282–301). New York: Cambridge University Press.

Waite, L. J., & Lehrer, E. L. (2003). The benefits from marriage and religion in the United States: A comparative analysis. *Population and Development Review*, *29*, 255–275.

Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*. Cambridge, MA: MIT Press.

Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), *Doing unto others* (pp. 17–26). Englewood Cliffs, NJ: Prentice Hall.

Wenger, C. G., Davies, R., Shahtahmasebi, S., & Scott, A. (1996). Social isolation and loneliness in old age: Review and model refinement. *Ageing and Society*, *16*, 333–358.

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Appendix

Items of the 11-Item De Jong Gierveld Loneliness Scale (Instruction: Please indicate for each of the statements, the extent to which they apply to your situation, the way you feel now. Please circle the appropriate answer: 1 = no, 2 = more or less, 3 = yes)

					Emotional Subscale	Social Subscale
1	There is always someone I can talk to about my day-to-day problems	1	2	3		X
2	I miss having a really close friend	1	2	3	X	
3	I experience a general sense of emptiness	1	2	3	X	
4	There are plenty of people I can rely on when I have problems	1	2	3		X
5	I miss the pleasure of the company of others	1	2	3	X	
6	I find my circle of friends and acquaintances too limited	1	2	3	X	
7	There are many people I can trust completely	1	2	3		X
8	There are enough people I feel close to	1	2	3		X
9	I miss having people around	1	2	3	X	
10	I often feel rejected	1	2	3	X	
11	I can call on my friends whenever I need them	1	2	3		X

Notes: In developing the scale, item response models like Rasch and Mokken were applied to evaluate the homogeneity of the scale. Scale scores are based on dichotomous item scores; the answer "more or less" always indicates loneliness. Processing the scale data entails counting the neutral and positive answers ("more or less," "yes") on items 2, 3, 5, 6, 9, and 10. This is the *emotional loneliness score*, ranging from 0 (*not emotionally lonely*) to 6 (*intensely emotionally lonely*). The emotional loneliness score is valid only if the *missing emotional loneliness score* (i.e., no answer) equals 0. Counting the neutral and negative ("more or less" and "no") answers on items 1, 4, 7, 8, and 11 produces the *social loneliness score*, ranging from 0 to 5 (*intensely socially lonely*). The social loneliness score is valid only if the *missing social loneliness score* equals 0. The total *loneliness score* is computed by taking the sum of the emotional loneliness score and the social loneliness score. The score 0 refers to complete social embeddedness and the absence of loneliness. The score 11 refers to ultimate loneliness. The total loneliness score is valid only if the sum of the missing emotional loneliness score and the missing social loneliness score equals 0 or 1. Further details, the manual and updates are available under "loneliness scale" at http://home.fsw.vu.nl/tg.van.tilburg/

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